ABSTRACT

An impedance standard substrate for calibrating a vector network analyzer ~~comprises~~ <u>includes</u> a first surface and a second surface opposite to the first surface. A thru-circuit has two contacts electrically connected to each other. The two contacts are disposed on the first surface and the second surface, respectively. The impedance standard substrate further ~~comprises~~ <u>includes</u> a pair of open-circuits, a pair of short-circuits, and a pair of load-circuits disposed on the first surface and the second surface, respectively.